

**WHAT IS CLAIMED IS:**

1. A medical apparatus for the thermal treatment of human tissue comprising:  
an energy delivery device including an optical fiber having a light-emitting section at a distal end thereof; and  
a positioning device that engages said optical fiber for moving said light-emitting section.
2. The medical apparatus for the thermal treatment of human tissue according to claim 1, further comprising an energy generator connected to said energy delivery device, said energy generator including a main processor.
3. The medical apparatus for the thermal treatment of human tissue according to claim 2, wherein said energy generator is a source of laser light delivered through said light-emitting section of said energy delivery device.
4. The medical apparatus for the thermal treatment of human tissue according to claim 3, wherein said positioning device is operatively connected to said energy generator and is controlled using said main processor.
5. The medical apparatus for the thermal treatment of human tissue according to claim 4, wherein said optical fiber includes a temperature sensor adjacent said light-emitting section for optically measuring a temperature.

6. The medical apparatus for the thermal treatment of human tissue according to claim 5, wherein said energy delivery device includes a memory device.
7. The medical apparatus for the thermal treatment of human tissue according to claim 6, wherein said memory device has at least one parameter stored therein and wherein said main processor compares the temperature measurement to at least one of said parameters.
8. The medical apparatus for the thermal treatment of human tissue according to claim 7, wherein said main processor automatically controls the movement of said light-emitting section within a treatment site and also adjusts the energy delivered from said energy generator to said light-emitting section in response to the temperature measurement.
9. The medical apparatus for the thermal treatment of human tissue according to claim 8, wherein said positioning device moves said light-emitting section in accordance with a schedule preset by data stored in said memory device.
10. A medical apparatus for the treatment of a lumen, said medical apparatus comprising an energy delivery device including a sensor, said energy delivery device connected to an energy generator and engaging a positioning device, said energy delivery device emitting energy received from said energy generator, said positioning device automatically moving said energy delivery device in response to signals received from said sensor.

11. The medical apparatus for the thermal treatment of human tissue according to claim 10, wherein said energy generator is selected from the group consisting of laser light, infrared, radio frequency, microwave, ultrasound, and any combinations thereof.
12. The medical apparatus for the thermal treatment of human tissue according to claim 11, wherein said sensor is a temperature sensor.
13. The medical apparatus for the thermal treatment of human tissue according to claim 12, wherein said energy delivery device further comprises an optical fiber having a light-emitting section on a distal end thereof.
14. The medical apparatus for the thermal treatment of human tissue according to claim 13, wherein said positioning device includes at least one motor operatively connected to a remote processor.
15. The medical apparatus for the thermal treatment of human tissue according to claim 14, wherein said remote processor is operatively connected to said energy generator to automatically move said light-emitting section of said optical fiber in response to signals from said temperature sensor.
16. A medical apparatus for the thermal treatment of human tissue comprising an energy generator having a main processor and being operatively connected to an energy delivery device, said energy delivery device including an optical fiber, said optical fiber having a light-emitting

section and a temperature sensor at a distal end thereof, said temperature sensor optically measures a temperature within said human tissue when said light-emitting section is energized by said energy generator, a positioning device engages said optical fiber, said positioning device controlled by said main processor and wherein said positioning device controls the movement of said light-emitting section within said human tissue.

17. The medical apparatus for the thermal treatment of human tissue according to claim 16, wherein said positioning device includes a screen for displaying data thereon.

18. The medical apparatus for the thermal treatment of human tissue according to claim 16, wherein said positioning device retracts and advances said light-emitting section of said optical fiber in a substantially continuous manner.

19. The medical apparatus for the thermal treatment of human tissue according to claim 16, wherein said positioning device retracts and advances said light-emitting section of said optical fiber in an incremental manner.

20. The medical apparatus for the thermal treatment of human tissue according to claim 16, wherein said human tissue comprises a blood vessel.